Summary of Cancer Incidence and Mortality for Zip Code 29169 (West Columbia, SC)

Cancer Incidence in Zip Code 29169

The first step in the analysis of cancer data for zip code 29169 was to look at the number of new cancer cases diagnosed in the zip code and compare this to the number of cancer cases expected (see Table 1). This first step determines if there is anything unusual with cancer patterns in the area. The number of "expected" cancer cases is calculated by using South Carolina cancer rates and applying them to the population of the zip code.

Table 1 shows what types of cancer occurred in zip code 29169 from 1996-2000, and how many cancer cases were expected. Overall, there were more cases of cancer than expected. A total of 648 new cases of cancer occurred in the zip code, while 635 cases were expected. However, this difference was not statistically significant. The most common types of cancer were lung, female breast, colon/rectum, and prostate cancers. These four types of cancer are also the most common cancers occurring across all of South Carolina.

The analysis revealed that the number of **lung cancer cases** that occurred was significantly higher than expected. A total of 137 cases of lung cancer were diagnosed while 99 cases were expected.

By far, the most important risk factor for lung cancer is smoking. More than 80% of lung cancers are thought to result from smoking. Looking at the history of tobacco use among these 137 cases in zip code 29169, we were able to determine that approximately 70% used tobacco.

However, there are other factors that can increase a person's risk of developing lung cancer. Exposure to second-hand smoke, asbestos, and radon increase risk. Also, exposure to cancer-causing agents in the workplace, such as uranium, arsenic, vinyl chloride, nickel chromates, coal products, fuels, and diesel exhaust can increase lung cancer risk. In addition, recurring inflammation, such as from tuberculosis or pneumonia, can leave scarring on the lungs, increasing the risk of developing lung cancer[1].

Cancer Deaths in Zip Code 29169

To assess cancer deaths in this zip code, cancer mortality data from 1997-2001 were used. The same process used to analyze new cancer cases was also used to analyze cancer deaths. Table 2 shows the number of cancer deaths that occurred and the number expected in the zip code. A total of 359 cancer deaths occurred in this zip code, while 346 deaths were expected. Therefore, more cancer deaths occurred than expected. However, this difference was not statistically significant. **Lung cancer deaths** and **Non-Hodgkin's Lymphoma (NHL) deaths** were significantly higher than expected.

A total of 111 lung cancer deaths occurred while 91 were expected. A total of 23 Non-Hodgkin's Lymphoma deaths occurred while 13 were expected. There are very few risk factors associated with NHL. Research has shown that certain genetic diseases can cause children to be born with a deficient immune system, which can increase their risk of developing NHL later in life. Also, exposure to radiation (such as in patients treated with radiation therapy for some other cancer) can increase the risk of developing NHL as a second cancer. Certain types of infection, such as Epstein-Barr virus, can also increase risk[1].

Conclusions

To summarize, more cancer cases and deaths occurred in zip code 29169 than expected; however, these differences were not statistically significant. The number of lung cancer cases and deaths that occurred in the zip code was significantly higher than expected. Statistics show that Lexington County ranks 5th in the state for lung cancer incidence and 9th in the state for lung cancer mortality. Therefore, high lung cancer rates are a trend seen not only in zip code 29169, but also across all of Lexington County.

Finally, there was a significant excess of NHL deaths in zip code 29169. Lexington County ranks 3rd in the state for NHL mortality. Again, this pattern of high NHL mortality rates is seen at the county-level as well.

In order for a true cancer cluster to exist, the number of cancers occurring must be more than would be expected by chance. Along with statistical testing, there are several other criteria that determine whether a true cancer cluster exists. First, a cancer cluster would more likely involve rarer types of cancer rather than more common cancers like lung or colon/rectum cancers. Also, a cancer cluster would occur with one specific type of cancer rather than having excesses in several different types of cancer.

Taking all these criteria into consideration, there is no evidence of cancer clustering or of cancers resulting from environmental exposures in zip code 29169.

For questions about this report, please contact Laura Sanders at the SC Central Cancer Registry.

Report provided by:
SC Central Cancer Registry
Department of Health and Environmental Control
2600 Bull St.
Columbia, SC 29201
Phone: (800) 817-4774 or (803) 898-3696

References

1. American Cancer Society, 2001. www.cancer.org

Information on cancer incidence provided by the SC Central Cancer Registry, Office of Public Health Statistics and Information Services, SC Dept. of Health and Environmental Control.

Information on cancer mortality provided by the Division of Vital Records and the Division of Biostatistics, SC Dept. of Health and Environmental Control.

2/10/03

Table 1. Analysis of New Cancer Cases in Zip Code 29169, 1996-2000

Site	Observed No. of Cases	Expected No. of Cases	Observed/Expected	Chi-SquareTest*
Lung/Bronchus	**137**	**98.6**	**1.39**	**14.94**
Breast (Female)	105	93.2	1.13	1.50
Colon/Rectum	91	82.0	1.11	1.00
Prostate	65	93.1	0.70	8.48
Non-Hodgkin's Lymphoma	24	21.0	1.14	0.43
Kidney/Renal Pelvis	22	15.0	1.47	3.31
Melanoma	20	18.8	1.06	0.07
Pancreas	20	16.6	1.21	0.71
Bladder	18	28.0	0.64	3.59
Uterus	14	15.7	0.89	0.19
Oral/Pharynx	13	16.7	0.78	0.81
Leukemia	11	13.2	0.84	0.35
Stomach	9	11.7	0.77	0.62
Larynx	8	6.9	1.16	0.17
Ovary	7	10.8	0.65	1.32
Brain/CNS	7	7.4	0.95	0.02
Thyroid	7	5.3	1.32	0.53
Esophagus	5	8.1	0.62	1.19
Cervix	5	7.6	0.66	0.87
Multiple Myeloma	4	7.8	0.51	1.86
All Sites	648	634.7	1.02	0.28

Excludes in situ cases of cancer to allow for comparison.
Cancer sites with less than 5 cases of cancer expected are not analyzed due to the unreliability of statistical tests based on small numbers.
*The Chi-Square statistical test allows us to determine if the difference between what is observed and what is expected is significant. If the value is greater than 3.84, then we are 95% confident that the observed number of cases is significantly different from the expected number of cases.
Prepared by: SC Central Cancer Registry, Office of Public Health Statistics and Information Services, Department of Health and Environmental Control, 2600 Bull St., Columbia, SC 29201
February 7, 2003 lcs

Table 2. Analysis of Cancer Deaths in Zip Code 29169, 1997-2001

Site	Observed No. of Deaths	Expected No. of Deaths	Observed/Expected	Chi-SquareTest*
Lung/Bronchus	**111**	**91.1**	**1.22**	**4.33**
Breast (Female)	35	25.5	1.37	3.57
Colon/Rectum	28	37.5	0.75	2.41
Non-Hodgkin's Lymphoma	**23**	**13.1**	**1.76**	**7.56**
Prostate	15	26.6	0.56	5.09
Pancreas	13	19.9	0.65	2.41
Bladder	10	7.8	1.28	0.62
Leukemia	9	13.4	0.67	1.45
Multiple Myeloma	9	8.4	1.07	0.04
Kidney/Renal Pelvis	8	6.8	1.18	0.22
Liver	8	6.4	1.26	0.43
Oral/Pharynx	8	6.0	1.32	0.64
Stomach	7	9.3	0.75	0.59
Ovary	7	8.5	0.82	0.26
Esophagus	7	7.2	0.98	0.00
Brain/CNS	4	7.0	0.57	1.30
All Sites	359	345.6	1.04	0.52

Cancer sites with less than 5 cancer deaths expected are not analyzed due to the unreliability of statistical tests based on small numbers.
*The Chi-Square statistical test allows us to determine if the difference between what is observed and what is expected is significant. If the value is greater than 3.84, then we are 95% confident that the observed number of deaths is signficantly different from the expected number of deaths.
Prepared by: SC Central Cancer Registry, Office of Public Health Statistics and Information Services, Department of Health and Environmental Control, 2600 Bull St., Columbia, SC 29201
February 7, 2003 lcs